

ID#240508

PUBLISHED ON  
APRIL 11, 2024

## Marketing Sustainability at General Motors

BY SILVIA BELLEZZA\* AND FRANCESCO TRONCI‡

In November 2023, top of mind for Kristen Siemen, chief sustainability officer at General Motors (GM), was how to increase consumer adoption of electric vehicles (EVs).

The automotive giant had decided years ago to focus on innovation and sustainability, taking the very important step of announcing in 2021 a full transition towards electric vehicles by 2035 to fast-track its broader strategy of “zero emissions, zero accidents, and zero congestion” (see Exhibit 1). Since this announcement, GM had continued to be bold in its statements on the future. For example, in a 2022 interview, GM CEO Mary Barra said, “No one has as many [electric] vehicles as we are going to have by 2025.”<sup>1</sup> Consumer demand for EVs was therefore critical to the company’s transition to an all-electric future.

However, while EV sales had increased over time, they still represented only a fraction of total vehicle sales. In 2022, 14% of all new cars sold in the United States were EVs, up from less than 5% in 2020,<sup>2</sup> but the pace of increase in EV penetration was already slowing down. The average car buyer seemed to continue to demand cars with a traditional internal combustion engine (ICE), partially due to lower cost and reduced range anxiety.<sup>i</sup> Higher interest rates had also made it more difficult to finance the cost differential between electric and traditional ICE vehicles. As a result, in fall 2023, demand for EVs appeared to be waning, and expectations were lagging; EVs were sitting on the market for an average of 82 days compared to 64 days for gas-powered vehicles.<sup>3</sup>

<sup>i</sup> Anxiety related to having a battery that provides less mileage compared to a full tank in an ICE car, and/or to not having to access sparse or overcrowded charging stations, especially during longer trips.

This case study reflects the work product of Columbia Business School. General Motors does not confirm or endorse the information in this case study.

### Author affiliation

\* Associate Professor of Business, Columbia Business School  
‡ HBS MBA alumnus, former board member and investor with EV-tech experience.

### Acknowledgements

Kate Lee provided research and writing support for this case.

### Copyright information

© 2024 by The Trustees of Columbia University in the City of New York.

*This case is for teaching purposes only and does not represent an endorsement or judgment of the material included.*

*This case cannot be used or reproduced without explicit permission from Columbia CaseWorks. To obtain permission, please visit [www.gsb.columbia.edu/caseworks](http://www.gsb.columbia.edu/caseworks), or e-mail [ColumbiaCaseWorks@gsb.columbia.edu](mailto:ColumbiaCaseWorks@gsb.columbia.edu).*

Given the situation, several manufacturers had already announced plans to postpone investments in EVs and key components (such as batteries<sup>4</sup>), anticipating a slower-than-expected transition. Because GM remained committed to its sustainability targets, sparking widespread demand for EVs was paramount. But how could such targets be maintained and achieved?

As she paced the halls of the GM headquarters, Siemen mulled over the many actions the sustainability, marketing, and communication teams were already working on and wondered which ones might need to be accelerated even further.

For example, GM had forged an alliance with Netflix and had invested significantly over the past several years in Super Bowl ads to popularize EVs and increase demand. Siemen was focused on identifying additional ways to communicate to consumers and drive adoption.

## Company Overview

William C. Durant formed GM in 1908 as a holding company that included the Buick and Oldsmobile brands. Durant's vision was to gain control of the automobile industry, an industry he termed "the greatest in this country," by acquiring other automobile brands. Rather than offer one type of vehicle as Ford Motor Company did, Durant wanted to offer a range of vehicles that would meet different consumer demands and preferences. In the company's first 16 months, GM acquired 22 companies, including Cadillac, Pontiac, and GMC. Subsequent acquisitions included Chevrolet, Opel, and Vauxhall.<sup>5</sup> By 1929, GM had become larger than its rival Ford, and in 1931, GM became the world's largest auto conglomerate—a title it retained for more than seven decades.

GM had a long history of innovation. In the 1920s, the company introduced the world's first lacquered paint system, cutting the production time of vehicles from 15 days to less than one day. It was the first automaker to offer vehicles that ran on unleaded gasoline, a breakthrough in reducing vehicle exhaust emissions, and it introduced new standards for frontal crash test ratings, the first airbags, the first catalytic converter, and the first vehicle-to-vehicle communications for safety.<sup>6</sup>

In 1996, GM introduced its first EV, the EV1. The vehicle's design was based on the Impact, a GM concept car. Only available through a lease and to consumers in two states (California and Arizona), the EV1 had a range of 150 miles.<sup>7</sup> While it garnered a cult following, the high production cost of the vehicle and lack of infrastructure to charge and service the vehicles led GM to discontinue the EV1 in 2001.<sup>8</sup> GM did not allow consumers to purchase EV1s once their lease expired, and by 2003 it had removed all EV1s from the road. Only about 40 vehicles were saved from the crusher. These vehicles were donated to museums and institutions, and GM kept a few for research.<sup>9</sup>

In 2010, GM introduced the Chevy Volt, the first extended-range EV.<sup>10</sup> Seven years later, GM debuted the Chevy Bolt. The Bolt was built on the company's first platform engineered from

the ground up to underpin EVs, and it used mobile app technology to enable car sharing and advanced GPS routing and gamification.<sup>11</sup>

Other innovations at GM included OnStar (1996), in-vehicle security and emergency services, and Super Cruise (2017), a highly innovative hands-free driving technology for the highway.<sup>12</sup>

In 2023, GM ranked number 21 on the Fortune 500 list<sup>13</sup> and held the largest market share in the US.<sup>14</sup> Its four core automobile brands were Chevrolet, GMC, Cadillac, and Buick. GM also owned the vehicle safety, security, and information services provider OnStar, the auto parts company ACDelco, GM Genuine Parts, GM Financial, and technology brands Ultium and Vehicle Intelligence Platform<sup>15</sup> (see Exhibit 2 and Exhibit 3).

## Sustainability at GM

In early 2014, GM released its first sustainability report under CEO Mary Barra. Announcing the report, Barra expressed a deep commitment to a 360-degree approach to sustainability:

Our customer focus underscores why sustainability is and will continue to be a core strategy for GM. People care about more than the cars. They care how we build them and how we engage with the world around us. This knowledge, and the discipline that flows from it, is transforming our approach to product design, manufacturing, safety, quality, the environment, customer care, and a host of other areas at a remarkable pace.<sup>16</sup>

The 2013 Sustainability Report outlined targets for reducing CO2 tailpipe emissions in the company's US fleet by 17% by 2017, reducing emissions in China by 28% by 2020, and reducing emissions in Europe by 27% by 2021.<sup>17</sup> It also outlined additional steps GM was taking:

Of course, how we manufacture our vehicles is an equally important part of our sustainability strategy. For example, we added a net seven landfill-free sites in 2013 to bring our total to 111 worldwide. In addition, our facilities are also working toward a 20% reduction in energy and carbon intensity by 2020 from a baseline of 2010, while more than doubling renewable energy use globally.<sup>18</sup> ii

### A NEW VISION: ZERO CRASHES, ZERO EMISSIONS, ZERO CONGESTION

In September 2017, Barra announced a new corporate vision for GM: Zero Crashes, Zero Emissions, Zero Congestion.<sup>19</sup> A month later, GM announced that it believed in an all-electric future and planned to introduce two new all-electric vehicles based on learnings from the Chevrolet Bolt EV within 18 months and that these vehicles would be the first of at least 20 new EVs that would be launched by 2023.<sup>20</sup> In 2020, Barra announced a new target of 30 EVs by 2025.<sup>21</sup>

---

ii GM achieved its goal of reducing manufacturing carbon intensity by 20% in 2017.

## **AN ALL-ELECTRIC FUTURE**

In January 2021, GM announced it would transition to 100% zero tailpipe emissions for new light-duty vehicles by 2035 and become carbon neutral in its global products and operations by 2040.<sup>22</sup>

In April 2021, the company announced it would strive for at least 50% sustainable content<sup>iii</sup> in all vehicles by 2030 and achieve science-based targets for scope 1, 2, and 3 emissions.

## **THE JOURNEY TO ZERO EMISSIONS**

GM's sustainability reports included a "sustainability priority matrix"<sup>iv</sup> in which Climate Risk, EV Infrastructure and product GHG emissions accounted for half of the "highest priority" items identified in the matrix, with the remaining top priorities being business ethics, diversity and inclusion and vehicle safety (see Exhibit 4a).

To reduce emissions and achieve carbon neutrality in global products and operations by 2040, GM had committed to achieving specific milestones and Science Based Targets initiative (SBTi)-approved targets<sup>v</sup>. GM measured its progress towards its targets with the Greenhouse Gas (GHG) Protocol. The GHG Protocol categorized emissions into three scopes. Scope 1 emissions included "direct emissions from owned or controlled sources," Scope 2 included "indirect emissions from the generation of purchased electricity, steam, heating, and cooling consumed by the reporting company," and Scope 3 "included all other indirect emissions in the company's value chain"<sup>23</sup> (see Exhibit 4b).

In 2022, Scope 3 emissions comprised 99% of the company's global emissions, with Scopes 1 and 2 comprising the remaining 1%<sup>24</sup> (see Exhibit 5).

### *Scopes 1 and 2*

The targets set for Scopes 1 and 2 were to source 100% renewable energy at GM sites by 2025. And by 2035, reduce energy intensity in its operations by 35% against a 2010 baseline, source 100% renewable energy globally, and reduce Scopes 1 and 2 operations emissions by 72% against a 2018 baseline.<sup>25</sup>

To meet these targets, GM implemented programs and initiatives to reduce energy consumption by improving energy efficiency, sourcing 100% of the company's electricity for US sites from renewable sources, and increasing its use of renewable power for electricity globally.<sup>26</sup>

---

<sup>iii</sup> Defined as materials that do not deplete nonrenewable resources or disrupt the environment or key natural resource systems.

<sup>iv</sup> Sustainability reports often include, on a voluntary basis, a tool called "materiality matrix" organizing the key ESG (Environmental, Social, and Governance) issues based on how relevant (material) they are to stakeholders or for business success, hence identifying the most critical items from a sustainability standpoint.

<sup>v</sup> The SBTi promotes science-based target setting to "show businesses how much and how quickly they need to reduce their GHG emissions to prevent the worst effects of climate change." More info available at: <https://sciencebasedtargets.org>

To track progress towards these targets, GM monitored utility bills and had metering on its equipment, so that it could track and monitor Scopes 1 and 2 emissions in real-time without relying on estimates. For example, GM collaborated with software provider TimberRock and Pennsylvania-New Jersey-Maryland Interconnection (PJM), the operator of the largest power grid in the United States, to track the carbon emissions from electricity use at 35 GM sites. The almost-real-time “marginal emissions data” was provided every five minutes by PJM, enabling GM not just to track emissions, but also to help the company make strategic decisions about energy use.<sup>27</sup>

In the fall of 2023, Kathi Walker, director of global sustainability strategies, outlined the challenges ahead for reducing Scope 1 and 2 emissions: “We use natural gas for our paint ovens and for heating for our facilities, manufacturing and non-manufacturing facilities. To reduce emissions, we will need to find technology alternatives for natural gas in those operations.”<sup>28</sup> Moreover, Walker shared that the company was focused on designing for circularity and creating a more circular economy to keep materials in use. This involved closing the loop to recover and recycle materials and using systems thinking, upfront design, and resource efficiency to keep carbon molecules where they can provide the most benefit.<sup>29</sup> Walker shared:

We are working with the design release team, the design staff, and the people designing parts, to look at how the parts go together and how they can be disassembled so that they can be reused. For example, maybe you don’t use adhesives, or you use a certain type of adhesives so they can be disassembled. It is really about trying to design at the early stage—from the beginning—to figure out what we do with the parts at the end.<sup>30</sup>

### *Scope 3*

Scope 3 emissions included three categories: use of sold products (i.e., downstream emissions), purchased goods and services (i.e., upstream emissions), and other.

#### *Downstream Emissions*

Downstream emissions from sold products comprised 75% of GM’s global carbon footprint in 2022.<sup>31</sup> GM tracked and monitored these emissions as part of the GHG Protocol. Most of these emissions were anticipations based on usage assumptions.

Not only did downstream emissions make up the majority of GM’s global carbon footprint, but they were, Walker noted, challenging to track and address. This included GM electrifying its fleet, having the charging infrastructure in place for consumers, and tracking that the EVs were actually being charged with electricity from renewable sources. Another important step was to get dealerships on board. “We need the dealerships on board and communicating with consumers—to make sure that consumers are comfortable with driving EVs and that they understand the benefits.” Walker continued, “It is going to take time. I’m not saying we can’t do it. We’re committed to doing it. It’s just going to be challenging.”<sup>32</sup>

GM set significant targets to address downstream Scope 3 emissions and initiated programs focused on transitioning to EVs and enhancing related infrastructure.<sup>33</sup>

**Emission Reduction Goals:** By 2035, GM targeted a 51% reduction in Scope 3 GHG emissions per vehicle kilometer for light-duty vehicles, using 2018 as the baseline. Additionally, GM planned to eliminate tailpipe emissions from new US light-duty vehicles, aligning with broader environmental goals.

**Scaling EV Production:** GM aimed to increase its annual EV production capacity to one million units in North America and over two million units globally by 2025. This substantial scale-up in EV production was central to reducing downstream emissions.

**Charging Infrastructure Investment:** GM invested nearly \$750 million in developing home, workplace, and public EV charging infrastructure across the United States and Canada. This investment was crucial for supporting the widespread adoption of EVs.

**Capital Spending and Investments:** GM allocated \$11 to \$13 billion annually for capital spending and investments. This budget included funds for battery cell manufacturing joint ventures, essential for EV production, through 2025.

**Factory ZERO:** Operating as GM's first fully dedicated EV assembly plant, Factory ZERO was a cornerstone in GM's strategy. It highlighted the company's commitment to an all-electric future and acted as a blueprint for future EV manufacturing facilities.

**Decarbonization via Hydrogen Fuel Cell Technology:** In addition to EVs, GM was exploring hydrogen fuel cell technology as another avenue for decarbonization. This technology had the potential to provide sustainable transportation solutions, particularly in sectors where battery-electric vehicles may not be the most viable option, such as in medium and heavy-duty transportation.

**Climate Partnerships:** GM was actively engaging in various climate partnerships. The Breakthrough Energy Catalyst, for example, was a public/private partnership working to commercialize green hydrogen, long-term energy storage, and sustainable aviation fuel. TPG Rise Climate (of which GM was one of 20 founding members)<sup>34</sup> was an investment platform focused on accelerating climate innovation companies developing and scaling clean energy, decarbonized transport, and agricultural technologies.<sup>35</sup> These collaborations were instrumental in fostering a broader commitment to sustainability and climate action across different sectors and communities.

#### *Upstream Emissions*

In 2022, purchased goods and services made up 18% of GM's carbon footprint.<sup>36</sup> GM used TimberRock as technology provider to track and monitor upstream emissions associated with electricity use, allowing real-time tracking. However, Walker noted that one of the biggest challenges was actually reducing supplier emissions. To that end, GM was taking steps to help suppliers along their journey to get to carbon neutral themselves, or net zero.

GM introduced several programs and initiatives to reduce Scope 3 emissions associated with purchased goods and services.<sup>37</sup>

**ESG Partnership Pledge for Tier I Suppliers:** GM invited its Tier I suppliers<sup>vi</sup> to join the GM ESG Partnership Pledge. This initiative was designed to enhance emissions tracking and management and encourage suppliers to align with GM's sustainability objectives.

**Supplier Sustainability Goals Framework:** This framework encouraged global Tier I suppliers to set and pursue their own carbon reduction goals. GM aimed to extend its sustainability efforts across its supply chain by providing a structured approach.

**Monitoring Sustainability Performance:** GM actively monitored the sustainability performance of its global Tier I and Tier II suppliers. This oversight ensured that suppliers were making progress toward sustainability goals and aligning their practices with GM's environmental standards.

**Securing Battery Raw Materials:** In line with its goal of achieving one million units of EV capacity in North America by 2025, GM was taking steps to contractually secure all necessary battery raw materials by signing agreements with companies including Glencore (Australia), POSCO FUTURE M (Canada), LG Chem (North America), Lithium Americas (United States), and Livent (North and South America).<sup>38</sup> This strategic move supported GM's shift towards EVs and underscored its commitment to sustainable transportation.

**Joining the First Movers Coalition:** GM joined the First Movers Coalition, committing to using low-carbon materials like steel, aluminum, concrete, and cement. This involvement signaled a strong market demand for materials essential for a net-zero transition, aligning with GM's goal to reduce its carbon footprint significantly.

### **COMPETITIVE LANDSCAPE: US MANUFACTURERS**

#### *The Big Three*

Ford and Stellantis (formerly Fiat Chrysler) had long been GM's primary competitors. The rivalry among GM, Ford, and Stellantis was a notable narrative in the automotive industry, reflecting the competitive dynamics among Detroit's "Big Three" automakers. Over the decades, the rivalry evolved, encompassing not just market share battles but also the race towards innovation and the adoption of new technologies, including the development of more efficient engines and more recently the transition to EVs.

Like GM, Ford and Stellantis had set goals to electrify their fleet and reduce emissions. However, neither company had set such absolute goals as GM, in terms of full transition to EVs on a global basis. Ford had set a goal of offering zero-emission capable vehicles in Europe by 2026, shifting to EV-only passenger sales in Europe by 2030, and for EV sales to be 40% of global sales by 2030.<sup>39</sup> Stellantis had announced a goal of 100% of passenger car sales in Europe and 50% of light-duty vehicle sales in the US to be EVs by 2030, and planned to offer more

---

<sup>vi</sup> Tier I suppliers are companies that supply parts or systems directly to OEMs.

than 75 EV models across its 14 brands, with the goal to reach global annual EV sales of five million units by 2030<sup>40</sup> (see Exhibit 6).

In 2023, while the competition amongst the three Detroit-based automakers continued to be a driving force behind their strategic initiatives, other players had entered their competitive landscape. Tesla had been the most disruptive of these new players.

### Tesla

Martin Eberhard and Marc Tarpenning launched Tesla in 2003 with the goal of producing an electric sports car and a mission to accelerate the world's transition to sustainable energy. In 2004, Elon Musk invested more than \$30 million in Tesla and stepped into the roles of chairman and head of product.<sup>41</sup> In 2006, Elon Musk released "The Secret Tesla Motors Master Plan (just between you and me)." The document addressed select key arguments used against electric vehicles, including an explanation of why moving the emissions from individual cars towards power generation assets could be more efficient from a carbon emission standpoint, depending on the energy source used to generate electricity, and mentioned Tesla's intent to work with partners to provide sustainable energy solutions (e.g., photovoltaics from "Solar City"). The document concluded with the key steps of the master plan:<sup>42</sup>

1. Build a sports car;
2. Use that money to build an affordable car;
3. Use *that* money to build an even more affordable car;
4. While doing above, also provide zero-emission electric power-generation options.

With such plan, Tesla was essentially aiming to kickstart EV adoption, starting with a market niche (sports cars, where performance mattered more than price and range) and then reinvesting the proceeds to develop new models and tackle larger market segments.

Tesla first created a sports car and targeted the luxury high-end car market, focusing on vehicle performance as the primary selling feature. Further, the company's engineers focused on developing the software to control the battery pack and designed a proprietary powertrain connecting the batteries to an all-electric motor. Tesla released its first vehicle, the Roadster, in 2008 with a base price of \$98,950. That same year, Musk took over as Tesla's CEO. The Roadster was instrumental in establishing Tesla's EV offering as an aspirational product.

The Model S sedan was introduced in 2012 (\$57,400) and was an immediate success. It received awards from several automotive and environmental publications and set new benchmarks for what an EV could achieve, including a range of up to 300 miles, reduced charging time, and five-star safety.<sup>43</sup> Also in 2012, Tesla opened its first freestanding charging stations, called Superchargers, and offered free charging for Tesla owners.

Over the next several years, Tesla released three additional vehicles, the Model X (\$132,000),<sup>44</sup> Model Y (\$47,000),<sup>45</sup> and the more affordable Model 3 (\$36,000),<sup>46</sup> solidifying its lead in western EV markets. In 2017, Tesla became the most valuable car maker in the United States.<sup>47</sup>

#### *EV Market in the United States*

In 2022, an estimated 918,000 EVs were sold in the United States,<sup>48</sup> representing 14% of all new cars sold in 2022. This was up from 9% in 2021 and less than 5% in 2020<sup>49</sup> (see Exhibit 7).

In 2022, Tesla accounted for 64% of US EV sales. Ford ranked second in EV sales with 7.6%, and Chevrolet took third place with 4.7% market share.<sup>50</sup> Among the top five most popular EVs in 2022, Tesla had four with its Model Y, Model 3, Model S, and Model X. The Ford Mustang Mach-E, which ranked third, was the only non-Tesla in the top five.<sup>51</sup>

#### **ULTIUM**

GM announced the Ultium EV platform and battery system in 2020. In 2021 it shared that Ultium would be the foundation for GM's next-generation EV lineup, powering everything from mass-market to high-performance vehicles, and it would be capable of delivering an EV that could go up to 450 miles on a full charge.<sup>52</sup>

The Ultium battery was unique in that the large-format, pouch-style cells could be stacked vertically or horizontally inside the battery pack, allowing engineers to optimize battery energy storage and layout to build a wide range of trucks, SUVs, crossovers, cars, and commercial vehicles. The battery had an estimated range of 400 or more on a single charge and was designed for fast charging.<sup>53</sup>

To launch manufacturing at scale, GM entered into a joint venture with LG Energy Solution, one of the largest battery makers worldwide. GM opened its first Ultium joint venture battery plant in Ohio in 2022. GM planned to open two additional plants in 2024.<sup>54</sup> Each plant required an investment of approximately \$2.3 billion or more<sup>55</sup>.

GM had committed to reusing or recycling all of its batteries. This included working with Lithion Recycling to pursue a circular battery ecosystem using Lithion's advanced battery recycling technology.<sup>56</sup> This commitment aligned with GM's focus on investing in circularity, as well as with the strategic need to secure a stable source of metals. Moreover, this was also in line with the European Union's focus on the battery's lifecycle. Starting in February 2027, all EV and industrial batteries on the EU market would require a unique battery passport identified with a QR code. The passport was required to store data throughout the entire battery lifecycle, including production, testing, and recycling information.<sup>57</sup>

#### *GM Energy*

In October 2022, GM announced the launch of a new business unit, GM Energy, with the goal of creating a holistic ecosystem of energy management solutions for residential, commercial, and EV customers.<sup>58</sup>

GM Energy products and solutions included Ultium batteries for vehicles, a home battery system utilizing Ultium cells, charging equipment, solar panels, and software. And, in 2023,

the company shared that compatible GM EVs equipped with the company's bidirectional V2H (vehicle-to-home) charging technology would enable homeowners to use their parked vehicle to store energy to sell back to the power company or use the vehicle as a backup energy source that could power the home during outages.<sup>59</sup> GM planned to introduce the first EVs equipped with bidirectional V2H charging technology in 2024, with bidirectional charging on all EVs by 2026.

Rob Threlkeld, director of global energy strategy, shared that GM Energy revolved around the customer and customer experience and that the products and solutions offered by GM Energy would be attractive to customers interested in sustainability and scaling renewables, while other customers would find the opportunity for revenue generation attractive.<sup>60</sup>

Threlkeld emphasized the need for regulatory and policy frameworks to aggregate EVs as assets to the grid, address state differences in net metering policies, and prove the capacity and reliability of EVs as energy assets to utilities and the wholesale market. He also noted that partnerships such as the Virtual Power Plant Partnership, a coalition of nonprofit and industry voices focused on changing policies, regulations, and market rules to unlock and scale virtual power plants, were critical to GM in educating consumers about the benefits and potential revenue from integrating EVs into the grid.<sup>61</sup>

The launch of GM Energy further intensified the competition between GM and Tesla. Tesla Energy offered residential and commercial solutions, including solar panels, solar roofs, and Powerwall, an integrated battery system that stored solar energy for backup protection when the grid went down. The Powerwall system detected outages and could power homes and EVs with backup energy. Furthermore, Tesla's Megapack was a grid-scale battery that provided energy storage and support, helping to stabilize the grid and prevent outages.<sup>62</sup>

### **MARKETING AND COMMUNICATION**

The GM brand was the umbrella brand for the entire company and had marketing and communication functions that focused on brand awareness and drove reputation across the core audiences, including consumers, employees, investors, dealers, suppliers, and policymakers. Each of the company's brands—Cadillac, Buick, Chevrolet, and GMC—had their own marketing and communications functions, primarily focusing on driving demand and sales.<sup>63</sup>

For the GM brand, marketing and communication played a critical role in its sustainability journey and in helping the company work towards its goals of an all-electric future and carbon neutrality. While marketing and communication were separate teams, they worked closely together, and their goals and objectives were aligned. The teams also worked closely with the office of sustainability.

The company's annual sustainability report was primarily a vehicle to communicate with investors. Walker and Siemen also attended and spoke at a range of events, such as the UN Climate Change Conference, Climate Week, the World Economic Forum, and ASPEN, and shared progress on the company's sustainability journey on social media to actively engage

with key stakeholders. Siemen reflected, “I’m not out there selling a specific product; I’m telling the GM story.”

### *Everybody In*

In January 2021, GM launched a new marketing campaign, “Everybody In.”<sup>64</sup> Siemen described the campaign as “the rallying cry of GM’s transition to an all-electric future.” Siemen continued:

One of the most critical challenges we face is that we cannot reach the future we envision alone—we must continue to pursue opportunities for collaboration with stakeholders across the globe, including suppliers, dealers, policymakers, climate thought leaders and others. A shift this massive requires everybody in, working together toward a single goal—an inclusive, all-electric future.<sup>65</sup>

The campaign included a new brand identity for GM, an identity designed to align with the company’s transformation as it delivered on its vision of Zero Crashes, Zero Emissions, and Zero Congestion. The campaign focused on three themes:<sup>66</sup>

- Exciting a new generation of buyers and accelerating EV adoption.
- Demonstrating GM’s EV leadership, including an investment of \$27 billion in EV and autonomous vehicle products through 2025 and the launch of 30 new EVs globally by the end of 2025.
- Highlighting the range, performance, and flexibility of the Ultium platform.

GM launched two ads during the 2021 Super Bowl as part of the Everybody In campaign. GM’s chief marketing officer Deborah Wahl shared:

For the GM brand, the whole mission right now is to really start the movement, really help change people’s opinions about what they think they know about EVs versus what they really are. Super Bowl requires something extra and something special. It’s a moment where you have an enormous amount of eyeballs.<sup>67</sup>

GM’s “No Way, Norway”<sup>68</sup> ad featured Will Ferrell rallying Kenan Thompson and Awkwafina to go to Norway and wage a battle against the country regarding EV adoption. The comedic ad targeted Norway as it was the world’s top-selling electric vehicle market per capita. The ad featured GM’s GMC Hummer pickup and Cadillac Lyriq crossover EVs and Ultium. “With GM’s new Ultium battery,” says Ferrell in the ad, “we’re going to crush those lugers. Crush them! Let’s go, America.”<sup>69</sup>

GM’s “Scissorhandsfree,”<sup>70</sup> Super Bowl ad featured Winona Ryder and Timothée Chalamet. The ad included the Cadillac Lyriq, an upcoming EV, and highlighted GM’s Super Cruise driver-assist system with hands-free driving.

In 2022, GM’s objective was to normalize EVs and communicate that GM would have the right EVs for everyone. At the same time, the company wanted to create awareness of GM’s climate

actions and commitments. Working across the organization to determine how to build trust with consumers while accomplishing these objectives, GM created the “Dr. EV-il” ad.<sup>71</sup>

Launched during the 2022 Super Bowl, the ad revived the Austin Powers cast and Dr. Evil, and pitted Dr. Evil against climate change. For the Super Bowl weekend, GM’s Twitter temporarily became Dr. Evil’s social media, posting a series of tweets from the character about EVs and climate change. On Monday morning, in response to a joke from “Dr. Evil” about donating “one million dollars” to fight climate change, Barra announced the company would give an additional \$50 million to its Climate Equity Fund.

Speaking about the ad, GM brand marketing specialist Amanda Reuss said: “We found a creative approach to incorporate that storyline with some of our sustainability initiatives, while also showcasing some of the wide range of EVs that the company had to offer.”<sup>72</sup>

In February 2023 GM and Netflix announced that Netflix would join GM’s “Everybody In” campaign. As part of the partnership, Netflix shared it would increase the presence of EVs in Netflix-produced TV shows and movies while also taking steps to enable more sustainable productions. To kick off the new alliance, the two companies aired a new commercial, “Why Not an EV”<sup>73</sup> featuring Will Ferrell during the Super Bowl.

In the ad, Will Ferrell drove GM EVs through the worlds of several of Netflix’s most popular shows, including “Squid Game” and “Stranger Things.” In addition to building awareness and educating consumers about GM EVs, the ad highlighted the new strategic alliance between Netflix and GM.

“We felt like joining forces with Netflix helped us take a leadership stance on sustainability, and really be seen as one of the organizations that is leading that conversation, and enacting real change.”<sup>74</sup> Reuss continued, by highlighting that the alliance with Netflix was different than ad placement in that it leveraged Netflix as a cultural accelerant to help popularize EVs and create more desire for an all-electric lifestyle.<sup>75</sup>

As part of the alliance, GM EVs would be seen in select Netflix shows and films, including Love is Blind, Queer Eye, and Unstable, which would feature the Chevrolet Bolt EV, GMC HUMMER EV Pickup, and Cadillac LYRIQ respectively.

Looking back across the company’s four most recent Super Bowl ads, GM’s marketing and communications team noted that the campaigns were “a cross functional effort between the communications team, the marketing team, sustainability, diversity teams, and divisional brands really all striving to boost that awareness and reputation and perception across all audiences.”<sup>76</sup>

## **PATH FORWARD**

In the summer of 2023, LMC Automotive estimated that by 2030, GM would outshine every other EV manufacturer with 18.3% of the US market share, leaving Tesla with 11.2%, followed by Volkswagen and Ford.<sup>77</sup> This assertion was based on GM’s massive scale advantage, and the efforts it had taken towards its all-electric future commitment.

The 2023 Inflation Reduction Act stipulated that for consumers to receive a federal tax credit for the purchase of an EV, at least 40% of the raw materials used in the battery had to be sourced from North America, with this requirement incrementally increasing to 80% by 2027. While most EV manufacturers, including Tesla, sourced the majority of these materials outside of North America, GM's supply chain strategy was more aligned with these new requirements, potentially giving it a significant advantage as the required domestic percentage increases. The Inflation Reduction Act also introduced income and vehicle price caps, both of which benefited GM as the Chevrolet Bolt EV, for example, was priced at \$26,595 while Tesla's eligible Model 3 was priced at \$46,990. The price difference made GM's EVs more accessible to the average American consumer.<sup>78</sup>

While EV adoption was core to the company's goal of carbon neutrality, GM had made a broader commitment to sustainability—a commitment that set the company apart from others, including Tesla. Siemen pointed out that GM was the only full-line OEM that had made a commitment to transitioning to an all-electric vehicle lineup and that the company had led the transition to setting goals to achieve carbon neutrality.<sup>79</sup> She continued, "Just because somebody makes an electric vehicle doesn't make them a sustainable company."<sup>80</sup>

While Tesla manufactured only EVs and offered a range of residential and commercial energy solutions, the company had been removed from the S&P 500 ESG index in May 2022 due to concerns, including a lack of a clear path to carbon neutrality and issues with workplace practices. Additionally, Tesla violated the EPA's Clean Air Act for years, settling with the agency in February 2022, and in 2023, the company was being investigated by the state of California for its handling of waste as well.<sup>81</sup>

GM's commitment to sustainability had not gone unnoticed. Awards and recognition included the Leader in Sustainability award from the Business Intelligence Group in 2020,<sup>82</sup> and a 2022 SEAL Business Sustainability Award, an award honoring leadership, innovation, and commitment to sustainable business practices.<sup>83</sup> And, in 2022, GM was awarded the ENERGY STAR Partner of the Year—Sustained Excellence Award from the US Environmental Protection Agency and the US Department of Energy for the eleventh year.<sup>84</sup>

While GM was deploying a cohesive strategy to take on Tesla in the EV market and had made significant progress towards its goal of carbon neutrality, GM's Q3 earnings call highlighted the reality that the path forward would not be easy.

On the call, commenting on a slower than expected growth in EV sales, Barra shared that GM would be taking immediate steps to enhance the profitability of its EV portfolio and adjust to slower near-term growth demand by moderating the pace of EV production in 2024 and 2025. While Barra did not provide new targets on the call, she shared that GM would be "moving towards a more agile approach to continually evaluate EV demand and adjust production schedules to maximize profitability."<sup>85</sup>

Following several questions by shareholders about how moderating the pace of EV production aligned with GM's 2021 commitment to an all-electric future, Barra closed the call by saying

"the transition to EVs will have ups and downs," but, "make no mistake, GM is very committed to an all EV future. We are not changing any of our goals there. We are just trying to make sure the company is more agile and resilient so that we can be successful as we manage this transformation."<sup>86</sup>

For GM, meeting the ambitious goals it had set in 2021 largely depended on consumers changing their purchasing behavior and buying a GM EV. Educating consumers and driving EV adoption was therefore critical to achieving this strategy, reducing Scope 3 emissions, and meeting the company's broader sustainability goals. A big part of this was having vehicles for consumers. In 2022, GM had 21 global models with some form of electrification and the company's global sales volume for EVs and hybrids was 554,694.<sup>87</sup> In the United States, GM had launched four EVs by 2023 and planned to launch five more in 2024 (see Exhibit 8).<sup>88</sup>

GM had several potential routes for communication moving forward. One direction could emphasize the driving performance and safety features of the company's EV portfolio, while another might tackle consumer concerns such as range anxiety. Alternatively, the ad could spotlight GM's strides toward achieving net-zero emissions, showcasing initiatives like constructing charging stations, introducing GM energy, forming partnerships across the supply chain, and cementing alliances like the one with Netflix. The optimal route to bolstering EV adoption was not straightforward.

## Exhibits

### Exhibit 1: Snapshot of GM's "About Us" Website

The screenshot shows the top navigation bar with the GM logo, Company, Commitments, Stories, Brands, Customers, Careers, Investors, Newsroom, and a search icon. Below the navigation is a section titled "OUR VISION" featuring a quote: "A world with zero crashes, zero emissions and zero congestion". A paragraph below the quote states: "Our diverse team of over 165,000 employees brings their collective passion for engineering, technology and design to deliver on this ambitious future. And the bold commitments we've made are moving us closer to realizing this vision." To the right is a photograph of a dense urban cityscape at night, overlaid with three teal-colored circles containing the text "zero crashes", "zero emissions", and "zero congestion". Below this are four sections: "Electrification" (with a "Learn More" button), "Vehicle Safety" (with a "Learn More" button), "Path to Autonomous" (with a "Learn More" button), and "Social Impact" (with a "Learn More" button).



#### WHO WE ARE

##### Together, for everyone

Headquartered in Detroit, Michigan, with employees around the world, General Motors is a company with global scale and capabilities.

- Employing over 165,000 people
- Serving six continents
- Operating across 22 time zones
- With a diverse workforce speaking 75 languages

[Learn More](#)

Source: "About Us," General Motors, <https://www.gm.com/company/about-us>.

## Exhibit 2: GM Consolidated Income Statement (US\$ millions)

US\$ in millions	2018	2019	2020	2021	2022
12 months ended:					
Automotive net sales and revenue	133,045	122,697	108,673	113,590	143,975
Automotive and other cost of sales	(120,656)	(110,651)	(97,539)	(100,544)	(126,892)
<b>Automotive and other gross margin</b>	<b>12,389</b>	<b>12,046</b>	<b>11,134</b>	<b>13,046</b>	<b>17,083</b>
GM Financial net sales and revenue	14,004	14,540	13,812	13,414	12,760
GM Financial interest, operating and other expenses	(12,298)	(12,614)	(11,274)	(8,582)	(8,862)
Automotive and other selling, general and administrative expense	(9,650)	(8,491)	(7,038)	(8,554)	(10,666)
Operating income	4,445	5,481	6,634	9,324	10,315
Automotive interest expense	(655)	(782)	(1,098)	(950)	(987)
Non-service pension and OPEB income	1,665	797	1,095	1,909	1,512
Interest income	335	429	241	146	460
Licensing agreements income	296	165	211	195	238
Revaluation of investments	258	80	265	571	(236)
Other	42	(2)	73	220	(542)
<b>Interest income and other non-operating income, net</b>	<b>2,596</b>	<b>1,469</b>	<b>1,885</b>	<b>3,041</b>	<b>1,432</b>
Equity income	2,163	1,268	674	1,301	837
<b>Income before income taxes</b>	<b>8,549</b>	<b>7,436</b>	<b>8,095</b>	<b>12,716</b>	<b>11,597</b>
Income tax expense	(474)	(769)	(1,774)	(2,771)	(1,889)
<b>Income from continuing operations</b>	<b>8,075</b>	<b>6,667</b>	<b>6,321</b>	<b>9,945</b>	<b>9,708</b>
Loss from discontinued operations, net of tax	(70)	—	—	—	—
<b>Net income</b>	<b>8,005</b>	<b>6,667</b>	<b>6,321</b>	<b>9,945</b>	<b>9,708</b>
Net loss attributable to noncontrolling interests	9	65	106	74	226
<b>Net income attributable to stockholders</b>	<b>8,014</b>	<b>6,732</b>	<b>6,427</b>	<b>10,019</b>	<b>9,934</b>
Cumulative dividends on subsidiary preferred stock	(98)	(151)	(180)	(182)	(1,019)
<b>Net income attributable to common stockholders</b>	<b>7,916</b>	<b>6,581</b>	<b>6,247</b>	<b>9,837</b>	<b>8,915</b>

### Exhibit 3: GM Consolidated Balance Sheet Assets (US\$ millions)

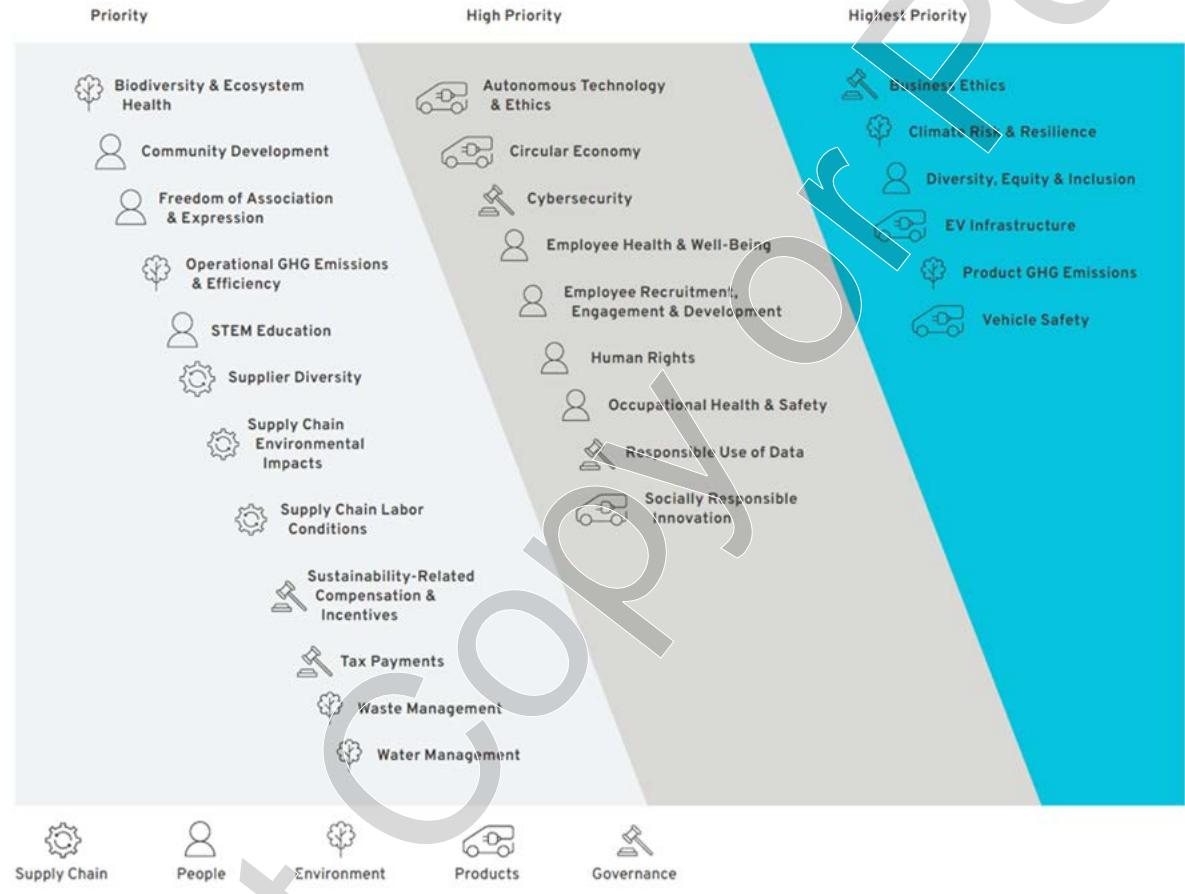
	2018	2019	2020	2021	2022
Cash and cash equivalents	20,844	19,069	19,992	20,067	19,153
Marketable debt securities	5,966	4,174	9,046	8,609	12,150
Accounts and notes receivable, net of allowance	6,549	6,797	8,035	7,394	13,333
GM Financial receivables, net of allowance	26,850	26,601	26,209	26,649	33,623
Inventories	9,816	10,398	10,235	12,988	15,366
Other current assets	5,268	7,953	7,407	6,396	6,826
<b>Current assets</b>	<b>75,293</b>	<b>74,992</b>	<b>80,924</b>	<b>82,103</b>	<b>100,451</b>
GM Financial receivables, net of allowance	25,083	26,355	31,783	36,167	40,591
Equity in net assets of nonconsolidated affiliates	9,215	8,562	8,406	9,677	10,176
Property, net	38,758	38,750	37,632	41,115	45,248
Goodwill and intangible assets, net	5,579	5,337	5,230	5,087	4,945
Equipment on operating leases, net	43,559	42,055	39,819	37,929	32,701
Deferred income taxes	24,082	24,640	24,136	21,152	20,539
Other assets	5,770	7,346	7,264	11,488	9,386
<b>Non-current assets</b>	<b>152,046</b>	<b>153,045</b>	<b>154,270</b>	<b>162,615</b>	<b>163,586</b>
<b>Total assets</b>	<b>227,339</b>	<b>228,037</b>	<b>235,194</b>	<b>244,718</b>	<b>264,037</b>

Source: General Motors.

## Exhibit [4a]: Sustainability Priority Matrix and related commentary

### Sustainability Priority Matrix

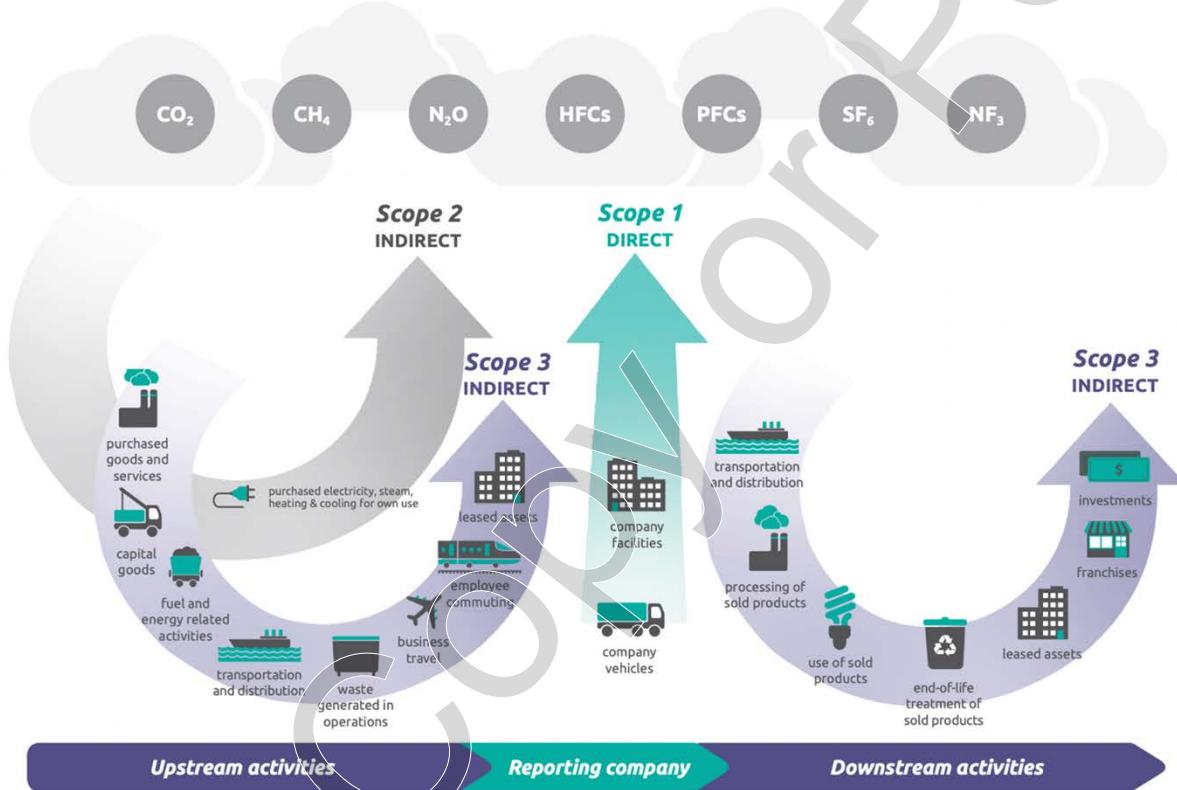
Topics are listed in alphabetical order within each priority category and do not represent specific ranking within the category.



Source: GM 2022 Sustainability Report, page 13, [https://www.gmsustainability.com/\\_pdf/resources-and-downloads/GM\\_2022\\_SR.pdf](https://www.gmsustainability.com/_pdf/resources-and-downloads/GM_2022_SR.pdf).

## Exhibit [4b]: Overview of GHG Protocol Scopes and Emissions across the Value Chain

Figure [I] Overview of GHG Protocol scopes and emissions across the value chain



Source: Figure 1.1 of Scope 3 Standard.

Source: "Technical Guidance for Calculating Scope 3 Emissions," World Resources Institute & World Business Council for Sustainable Development, 2013, [https://ghgprotocol.org/sites/default/files/2023-03/Scope3\\_Calculation\\_Guidance\\_0%5B1%5D.pdf](https://ghgprotocol.org/sites/default/files/2023-03/Scope3_Calculation_Guidance_0%5B1%5D.pdf).

## Exhibit 5: GM's Emission Reduction Plan

### Emissions Reduction Plan

Our goal is to achieve carbon neutrality in global products and operations by 2040.



- ● ● ● ●
- Scope 3-Use of Solid Products
- Scope 3-Purchased Goods and Services
- Scopes 1 and 2
- See more detailed performance in our Data Center.

Source: General Motors.

**Columbia  
CaseWorks**

**Marketing Sustainability at General Motors | Page 20**

BY SILVIA BELLEZZA\* AND FRANCESCA TRONCI†

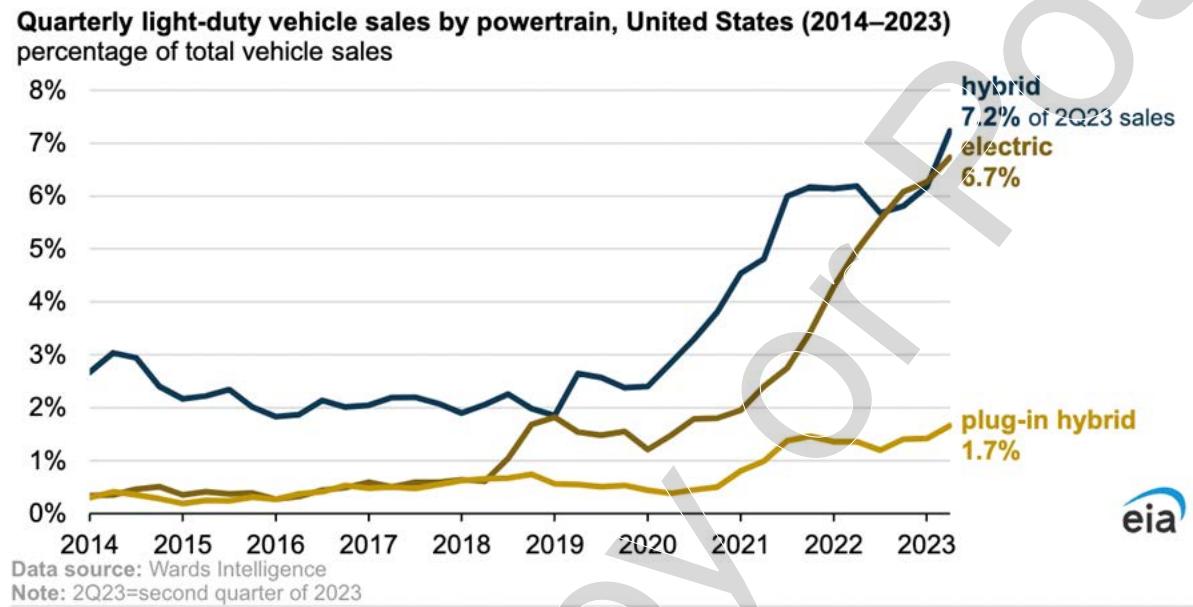
30 Based on estimated forecasted global renewable energy sourced through currently executed agreements, subject to change depending on actual future electric usage in operations and actual future renewable generation.

## Exhibit 6: Electrification Goals of Select Automobile Brands

Brand	Goals
Ford	<ul style="list-style-type: none"><li>• Zero-emission vehicles in Europe by 2026</li><li>• EV-only passenger sales in Europe by 2030</li><li>• 40% of global sales to be EVs by 2030</li></ul>
GM	<ul style="list-style-type: none"><li>• 100% zero tailpipe emissions for new light-duty vehicles by 2035</li><li>• 30 EVs by 2025</li></ul>
Stellantis	<ul style="list-style-type: none"><li>• 100% of passenger car sales in Europe and 50% of light-duty vehicle sales in the US to be EVs by 2030</li><li>• More than 75 EV models (across all 14 brands) and global annual EV sales of five million units by 2030</li></ul>

Source: General Motors.

## Exhibit 7: EV Market



Note: Hybrid vehicles do not require external charging, while plug-in hybrids can be charged via an electrical outlet.

Source: "Electric Vehicles and Hybrids Make up 16% of US Light-Duty Vehicle Sales," US Energy Information Administration, September 7, 2023, <https://www.eia.gov/todayinenergy/detail.php?id=60321>.

## Exhibit 8: GM US EV Portfolio

### Our Growing EV Portfolio

#### U.S. EV Models

We are building an entire portfolio of purpose-built EVs designed to serve the widest market at affordable price points, and we plan to offer nine models for sale in 2023 in popular segments across

Cadillac, GMC and Chevrolet. The Chevrolet Bolt EV and Bolt EUV (electric utility vehicle) are already among the most affordable EVs on the market.<sup>14</sup> Looking ahead, Buick and Cadillac are planning for an all-EV portfolio in North America by the end of the decade.

2022 BrightDrop Zero 600	2023 Cadillac LYRIQ	2023 Chevrolet Bolt EV and EUV	2023 GMC HUMMER EV 2023 PICKUP and 2024 SUV	2024 Chevrolet Equinox EV
This all-electric cargo van, built with safety, efficiency and driver comfort in mind, is designed to deliver goods and services over long ranges.	The all-electric LYRIQ is a fully electric high-performance luxury SUV with an Environmental Protection Agency (EPA)-estimated, rear-wheel drive model range of 312 miles <sup>15</sup> on a full charge. It will also offer Super Cruise, the first true hands-free driver assistance technology.	The Bolt is the most affordable EV in America. <sup>16</sup> 2023 Bolt EV and EUV have an EPA-estimated range of 259 miles <sup>15</sup> and 247 miles <sup>15</sup> respectively on a full charge.	The world's first all-electric supertruck has fast-charging capability and is available with a 350+ mile range <sup>17</sup> for the pickup and 300+ mile range <sup>18</sup> for the SUV.	The Equinox EV is expected to be one of the most affordable EVs in its class and will offer up to a GM-estimated 300 miles of range on a full charge. <sup>19</sup>
				
<a href="#">2024 Chevrolet Silverado EV</a>	<a href="#">2024 Chevrolet Blazer EV</a>	<a href="#">2024 Cadillac CELESTIQ</a>	<a href="#">2024 GMC Sierra EV Denali Edition 1</a>	
Chevrolet's first all-electric Silverado will offer customers a GM-estimated range of up to 400 miles on a full charge, along with four-wheel steer, a multi-flex midgate and Super Cruise with trailering driver assistance technology on the Silverado EV First Edition RS1. <sup>19</sup>	The Blazer EV has the capability of an SUV with the standout styling of a sports car and will be available as an all-electric SUV in summer 2023.	The CELESTIQ is an ultra-luxury, custom commissioned EV that will be sedans offered all-wheel drive, four-wheel steering and a Smart Glass roof that allows each occupant to set their own experience. The vehicle's interior also incorporates socially conscious contemporary materials.	With fast-charging capability and a GM-estimated range of up to 400 miles on a full charge, the all-electric Sierra EV Denali Edition 1 electric truck comes with Super Cruise driver assistance technology. Available early 2024.	
				

<sup>14</sup> Based on comparison of starting-at manufacturer's suggested retail price (MSRP) of the 2023 Chevrolet Bolt EV LT and EUV LT with that of competing EVs.

<sup>15</sup> EPA estimated. Actual range will vary based on several factors, including temperature, terrain, battery age, loading, use and maintenance.

<sup>16</sup> GM-estimated. Actual range will vary based on several factors, including temperature, terrain, battery age, loading, use and maintenance. For the GMC Hummer EV 2023 Pickup, available on EV3X based on a full charge. For the GMC EV 2024 SUV, standard on Edition 1 (not equipped with Extreme Off-Road Package), EV3X, and EV2X, and available on EV2 based on a full charge.

<sup>17</sup> GM-estimated range is based on current capability of analytical projection consistent with SAE J1634 revision 2017-MCT. GM-estimated range is based on a vehicle with a full charge. Actual range will vary based on several factors, including temperature, terrain, battery age, loading, use and maintenance. Performance targets, estimates and capability specifications based on computer-aided analysis and simulation using virtual engineering tools. EPA estimates not yet available.

<sup>18</sup> First-edition Silverado EV RST. GM-estimated range on a full charge based on current capability of analytical projection consistent with SAE J1634 revision 2017-MCT. Actual range may vary based on several factors, including temperature, terrain, battery age, loading, use and maintenance. EPA estimates not yet available.

Source: General Motors, "2022 Sustainability Report," 2022, [https://www.gmsustainability.com/\\_pdf/resources-and-downloads/GM\\_2022\\_SR.pdf](https://www.gmsustainability.com/_pdf/resources-and-downloads/GM_2022_SR.pdf).

## Endnotes

---

<sup>1</sup> Michael Wayland, "GM Trails Far behind Tesla in EV Sales—CEO Mary Barra Bet the Company that Will Change," CNBC.com, July 25, 2022,

<https://www.cnbc.com/2022/07/24/why-ceo-mary-barra-is-confident-gm-can-beat-tesla-in-electric-vehicles.html>.

<sup>2</sup> "EV Sales Growth was a Highlight of 2022," Cox Automotive, June 7, 2023,  
<https://www.coxautoinc.com/market-insights/ev-sales-growth-was-a-highlight-of-2022/>.

<sup>3</sup> Medora Lee, "Here's Why People Aren't Buying EVs in Spite of Price Cuts and Tax Breaks," USA Today, November 14, 2023,  
<https://www.usatoday.com/story/money/personalfinance/2023/11/14/ev-sales-2023-slow-inventory-pile-up/71572499007/>.

<sup>4</sup> Christiaan Hetzner, "Ford CEO Jim Farley Slashes Plans for New Battery Cell Plant in Latest Sign the EV Sales Bonanza May Be Over," Fortune, November 22, 2023,  
<https://fortune.com/2023/11/22/ford-jim-farley-electric-vehicles-batteries-michigan-manufacturing-factory/>.

<sup>5</sup> "The Rise of Durant: From Lumberyard Worker to King of Carriage Makers," General Motors, <https://www.gm.com/heritage/durant>.

<sup>6</sup> Matt Tsien, "Celebrating 100 Years of Research and Development Innovation," General Motors, <https://www.gm.com/stories/100-years-research-development>.

<sup>7</sup> John Pearley Huffman and Jeff Bartlett, "1997 GM EV1: The First Consumer Ready Electric Vehicle vs. the Real World," MotorTrend, January 2, 1997,  
<https://www.motortrend.com/features/1997-gm-ev1/>.

<sup>8</sup> Rebecca Matulka, "The History of the Electric Car," Department of Energy, September 15, 2014, <https://www.energy.gov/articles/history-electric-car>.

<sup>9</sup> Owen Edwards, "The Death of the EV-1," Smithsonian, June 2006,  
<https://www.smithsonianmag.com/science-nature/the-death-of-the-ev-1-118595941/>.

<sup>10</sup> Tsien, "Celebrating 100 Years."

<sup>11</sup> Brian Mastroianni, "Chevy Unveils Its Bolt Next-Gen Electric Car," CBSNews.com, January 7 2016, <https://www.cbsnews.com/news/chevy-unveils-bolt-electric-car/>.

<sup>12</sup> Tsien, "Celebrating 100 Years."

<sup>13</sup> "General Motors," Fortune, <https://fortune.com/company/general-motors/fortune500/>.

<sup>14</sup> Nathan Gomes, "GM leads US auto sales as industry concludes best year since pandemic," Reuters, January 3, 2024, <https://www.reuters.com/business/autos-transportation/us-auto-sales-likely-jumped-2023-new-year-be-challenging-2024-01-03/>.

<sup>15</sup> "Brands," General Motors, <https://www.gm.com/gm-brands>.

<sup>16</sup> "GM Outlines Efforts to Transform Transportation," General Motors (press release), May 20, 2024,  
[https://news.gm.ca/en/home/newsroom.detail.html/Pages/news/ca/en/2014/May/0520\\_Sustainability.html](https://news.gm.ca/en/home/newsroom.detail.html/Pages/news/ca/en/2014/May/0520_Sustainability.html).

<sup>17</sup> RP Siegel, "GM's 2013 Sustainability Report: Connecting to What's Important," Triple Pundit.com, May 27, 2014, <https://www.triplepundit.com/story/2014/gms-2013-sustainability-report-connecting-whats-important/43571>.

<sup>18</sup> Siegel, "GM's 2013 Sustainability Report."

<sup>19</sup> Mary Barra, "Zero Crashes, Zero Emissions, Zero Congestion," LinkedIn.com, October 3, 2017, <https://www.linkedin.com/pulse/zero-crashes-emissions-congestion-mary-barra/>.

<sup>20</sup> Julia Pyper, "General Motors Commits to an 'All-Electric Future' With Sights Set on China," Green Tech Media, October 3, 2017,

<https://www.greentechmedia.com/articles/read/general-motors-all-electric-fuel-cell-vehicles-china-ev>.

<sup>21</sup> General Motors, "GM Boosts Investment, Grows Electric Portfolio to Lead in EV Race," (news release), November 19, 2020, <https://investor.gm.com/static-files/66b83c73-17f3-426a-9618-393cea479c19>.

<sup>22</sup> Fred Krupp, "Why GM's clean cars announcement is a really big deal," January 28, 2021, Environmental Defense Fund, <https://www.edf.org/blog/2021/01/28/why-gms-clean-cars-announcement-really-big-deal>.

<sup>23</sup> "Technical Guidance for Calculating Scope 3 Emissions," World Resources Institute & World Business Council for Sustainable Development, 2013,  
[https://ghgprotocol.org/sites/default/files/2023-03/Scope3\\_Calculation\\_Guidance\\_0%5B1%5D.pdf](https://ghgprotocol.org/sites/default/files/2023-03/Scope3_Calculation_Guidance_0%5B1%5D.pdf).

<sup>24</sup> General Motors, "2022 Sustainability Report," 2022,  
[https://www.gmsustainability.com/\\_pdf/resources-and-downloads/GM\\_2022\\_SR.pdf](https://www.gmsustainability.com/_pdf/resources-and-downloads/GM_2022_SR.pdf).

<sup>25</sup> General Motors, "2022 Sustainability Report."

<sup>26</sup> General Motors, "2022 Sustainability Report."

<sup>27</sup> General Motors, "2022 Sustainability Report," p. 30.

<sup>28</sup> Kathi Walker, interview with the author, September 26, 2023.

<sup>29</sup> General Motors, "2017 Sustainability Report," 2017,  
[https://www.responsibilityreports.com/HostedData/ResponsibilityReportArchive/g/NYS\\_E\\_GM\\_2017.pdf](https://www.responsibilityreports.com/HostedData/ResponsibilityReportArchive/g/NYS_E_GM_2017.pdf).

<sup>30</sup> Walker, interview with the author.

<sup>31</sup> General Motors, "2022 Sustainability Report."

<sup>32</sup> Walker, interview with the author.

<sup>33</sup> General Motors, "2022 Sustainability Report."

<sup>34</sup> Paul Jacobson, "GM Joins TPG's First-if-Its-Kind Coalition Focused on Climate-Related Investments," LinkedIn.com, July 27, 2021, <https://www.linkedin.com/pulse/gm-joins-tpgs-first-of-its-kind-coalition-focused-paul-jacobson/>.

<sup>35</sup> Jacobson, "GM Joins TPG's First-if-Its-Kind Coalition."

<sup>36</sup> General Motors, "2022 Sustainability Report."

<sup>37</sup> General Motors, "2022 Sustainability Report."

<sup>38</sup> General Motors, "2022 Sustainability Report."

<sup>39</sup> "Ford Europe Goes All-in on EVs on Road To Sustainable Profitability; Cologne Site Begins \$1 Billion Transformation," Ford Motor Company, <https://corporate.ford.com/articles/electrification/ford-europe-goes-all-in-on-evs.html>.

Tom Krisher, "Ford: Electric Vehicles to be 40% of Global Sales by 2030," APNews.com, May 26, 2021, <https://apnews.com/article/electric-vehicles-technology-business-d874b87e8b7f9e2aa25330b31040c8d4>.

<sup>40</sup> "Electrification: Accelerating the Drive to Electrification," Stellantis, <https://www.stellantis.com/en/technology/electrification>.

<sup>41</sup> Johnna Crider, "Elon Musk Clarifies that He Led the Design of the Original Tesla Roadster," Teslarati.com, November 22, 2022, <https://www.teslarati.com/elon-musk-led-design-tesla-roadster/>.

<sup>42</sup> Elon Musk, "The Secret Tesla Motors Master Plan (just between you and me)," Tesla.com, August 2, 2006, <https://www.tesla.com/blog/secret-tesla-motors-master-plan-just-between-you-and-me>.

<sup>43</sup> Eric Reed, "History of Tesla: Timeline and Facts," TheStreet.com, October 5, 2020 <https://www.thestreet.com/technology/history-of-tesla-15088992>.

<sup>44</sup> Chuck Squatriglia and Alex Davies, "Tesla's Model X Is Here, and It's as Awesome as We Hoped," Wired, September 29 2015, <https://www.wired.com/2015/09/tesla-model-x-suv-reveal-specs-price/>.

<sup>45</sup> Andrew J. Hawkins and Sean O'Kane, "Tesla Model Y Announced: Release Set for 2020, Price Starts at \$47,000," TheVerge.com, March 14, 2019, <https://www.theverge.com/2019/3/14/18264446/tesla-model-y-suv-compact-announcement-price-release-date-features-elon-musk>.

<sup>46</sup> "Research Cars: 2017 Tesla Model 3," Car and Driver, <https://www.caranddriver.com/tesla/model-3-2017>.

<sup>47</sup> Noel Randewich, "Tesla Becomes Most Valuable U.S. Car Maker, Edges out GM," Reuters.com, April 11, 2017, <https://www.reuters.com/article/us-usa-stocks-tesla/tesla-becomes-most-valuable-u-s-car-maker-edges-out-gm-idUSKBN17C1XF>.

<sup>48</sup> Mathilde Carlier, "Electric Vehicles in the United States—Statistics & Facts," Statista, December 18, 2023, <https://www.statista.com/topics/4421/the-us-electric-vehicle-industry/#topicOverview>.

<sup>49</sup> "Global EV Outlook 2023," IEA, Paris, 2023, <https://www.iea.org/reports/global-ev-outlook-2023/executive-summary>.

<sup>50</sup> Dan Mihalascu, "EVs Made up 5.6% of US Car Market in 2022 Driven by Tesla," InsideEVs.com, February 20, 2023, <https://insideevs.com/news/653395/evs-made-up-5point6-percent-of-overall-us-car-market-in-2022-driven-by-tesla/>.

<sup>51</sup> Mihalascu, "EVs Made up 5.6% of US Car Market in 2022."

<sup>52</sup> General Motors, "To Advance Zero-Emissions Future, GM Invites 'Everybody In,'" PRNewswire.com, (news release), January 8, 2021, <https://www.prnewswire.com/news-releases/to-advance-zero-emissions-future-gm-invites-everybody-in-301203451.html>.

<sup>53</sup> General Motors, "GM Invites 'Everybody In.'"

<sup>54</sup> Iulian Dnistran, "GM's Ultium Cells Plant In Tennessee Delayed Until 2024 (Updated)," InsideEVs.com, October 28, 2023, <https://insideevs.com/news/693537/gm-ultium-cells-tennessee-plant-delayed-2024/>.

<sup>55</sup> David Shepardson, "GM, LG joint venture to invest \$275 million in Tennessee battery cell plant", December 2, 2022, <https://www.reuters.com/business/autos-transportation/gm-lg-joint-venture-invest-275-million-tennessee-battery-cell-plant-2022-12-02/>.

<sup>56</sup> "GM and Lithion Announce an Investment and Strategic Partnership Agreement to Pursue a Circular EV Battery Ecosystem," General Motors, (news release), September 22, 2022, <https://news.gm.com/newsroom.detail.html/Pages/news/us/en/2022/sep/0922-lithion.html>.

<sup>57</sup> Chris Stretton, Tian Daphne, and Dr. Shyaam Ramkumar, "Battery Regulation EU: Learn about Battery Passports," Circularise.com (blog), August 17, 2023, <https://www.circularise.com/blogs/battery-regulation-eu-what-you-need-to-know-about-battery-passports>.

<sup>58</sup> "General Motors' New Energy Ecosystem Will Give Customers Control of Their Energy Needs and Help Mitigate Effects of Power Outages," General Motors, (news release), October 10, 2022,

<https://news.gm.com/newsroom.detail.html/Pages/news/us/en/2022/oct/1011-energyecosystem.html>.

<sup>59</sup> "Ultium Products: Home, Commercial & EV Chargers," General Motors, <https://gmenergy.gm.com/ultium-products>.

<sup>60</sup> Rob Threlkeld, interview with the author, September 18, 2023.

<sup>61</sup> Threlkeld, interview with the author.

<sup>62</sup> "Power Everything," Tesla.com, <https://www.tesla.com/energy>.

<sup>63</sup> Interview with GM marketing and communications. October 16, 2023.

<sup>64</sup> Craig Cole, "'Everybody in' is GM's new EV-focused marketing campaign," CNET, January 8, 2021, <https://www.cnet.com/roadshow/news/everybody-in-gm-ev-marketing/>.

<sup>65</sup> General Motors, "2021 Sustainability Report," 2021,

[https://www.gmsustainability.com/\\_pdf/resources-and-downloads/GM\\_2021\\_SR.pdf](https://www.gmsustainability.com/_pdf/resources-and-downloads/GM_2021_SR.pdf).

<sup>66</sup> General Motors, "GM Invites 'Everybody In.'"

<sup>67</sup> Michael Wayland, "Will Ferrell Wages Battle against Norway in GM's 2021 Super Bowl Ad," CNBC.com, February 3, 2021, <https://www.cnbc.com/2021/02/03/watch-gms-2021-super-bowl-ad-with-will-ferrell-before-it-air.html>.

<sup>68</sup> "General Motors: 'No Way, Norway,'" AdAge.com, December 6, 2021, <https://adage.com/video/general-motors-no-way-norway>.

<sup>69</sup> Wayland, "Will Ferrell Wages Battle against Norway."

<sup>70</sup> "Cadillac: 'Scissorhandsfree,'" AdAge.com, November 3, 2021, <https://adage.com/video/cadillac-scissorhandsfree>.

<sup>71</sup> Interview with GM marketing and communications. October 16, 2023. General Motors: ‘Dr. EV-il,’ AdAge.com, February 13, 2022, <https://adage.com/video/general-motors-dr-ev-il>.

<sup>72</sup> Interview with GM marketing and communications. October 16, 2023.

<sup>73</sup> “General Motors: ‘Why Not an EV?’” AdAge.com, October 22, 2022, <https://adage.com/video/general-motors-why-not-ev>.

<sup>74</sup> Interview with GM marketing and communications. October 16, 2023.

<sup>75</sup> Interview with GM marketing and communications. October 16, 2023.

<sup>76</sup> Interview with GM marketing and communications. October 16, 2023.

<sup>77</sup> Q.ai (contributor group), “GM EV vs. Tesla: The Competition for Electric Vehicle

Dominance,” Forbes, September 28, 2022,

<https://www.forbes.com/sites/qai/2022/09/28/gm-ev-vs-tesla-the-competition-for-electric-vehicle-dominance/?sh=596dd2b63070>.

<sup>78</sup> Q.ai, “GM EV vs. Tesla.”

<sup>79</sup> Kristen Siemens, interview with the author, October 2, 2023.

<sup>80</sup> Siemens, interview with the author.

<sup>81</sup> Q.ai, “GM EV vs. Tesla.”

<sup>82</sup> 3BL Media, “GM Awarded for Global Sustainability Leadership Award,” (news release), September 8, 2020, <https://www.3blmedia.com/news/gm-awarded-global-sustainability-leadership-award>

<sup>83</sup> SEAL Awards, “ESG Leaders Recognized at 2022 SEAL Business Sustainability Awards,” (news release), PRWeb.com, December 12, 2022,

<https://www.prweb.com/releases/esg-leaders-recognized-at-2022-seal-business-sustainability-awards-885500131.html>.

<sup>84</sup> “General Motors Earns 2021 ENERGY STAR® Sustained Excellence Award for the 10th Year,” General Motors, (news release), April 13, 2021,

<https://news.gm.com/newsroom.detail.html/Pages/news/us/en/2021/apr/0413-energystar.html>. “General Motors Company,” EnergyStar.gov, [https://www.energystar.gov/about/content/general\\_motors\\_company\\_11](https://www.energystar.gov/about/content/general_motors_company_11).

<sup>85</sup> Motley Fool, “General Motors (GM) Q3 2023 Earnings Call Transcript,” October 24, 2023, <https://www.fool.com/earnings/call-transcripts/2023/10/24/general-motors-gm-q3-2023-earnings-call-transcript/>.

<sup>86</sup> Motley Fool, “GM Q3 2023 Earnings Call Transcript.”

<sup>87</sup> General Motors, “2022 Sustainability Report: Data Center,” 2022, [https://www.gmsustainability.com/\\_pdf/resources-and-downloads/GM\\_ESG\\_Data\\_2022.pdf](https://www.gmsustainability.com/_pdf/resources-and-downloads/GM_ESG_Data_2022.pdf).

<sup>88</sup> General Motors, “2022 Sustainability Report: Emissions Reduction Plan,” 2022,

[https://www.gmsustainability.com/\\_pdf/resources-and-downloads/GM\\_2022\\_SR.pdf](https://www.gmsustainability.com/_pdf/resources-and-downloads/GM_2022_SR.pdf).